# VIC 20

# COLOUR COMPUTER

commodore
COMPUTER

# INTRODUCING THE

Most people think that a computer costs the earth. This may be true of some computers but not of the Commodore VIC 20. Now everyone can afford a computer whether it's for use in their home, school or small business. It's the VIC 20!*

The Commodore VIC 20 is incredibly low in price, but still offers the quality and features you don't want to be without. The VIC 20 has high resolution colour video and excellent sound facilities. Moreover, it is designed so that anyone in the family, young or old, can operate it with ease and confidence. Even someone using a computer for the first time will have no problem operating the VIC 20.

Many useful programs and entertaining games are available for the VIC 20. For those who wish to create their own programs the VIC 20 uses Basic, the simplest and easiest to learn programming language.

One of the great features of the VIC 20 is that it is a full-fledged computer at a low price. But Commodore didn't stop there. The VIC 20 is truly expandable to a very sophisticated computer system when needs and budget dictate.

The VIC 20 uses any ordinary domestic colour television as its display screen. The connection to your TV set is easy. Just plug the VIC 20 into the aerial socket just like you would a video recorder or home game machine. Turn them on and you're ready to operate your computer.

Commodore gives every VIC 20 purchaser a friendly guide called "Personal Computing on the VIC 20". This book shows every owner, the first-time user of a computer, exactly how to

# COMMODORE VIC 20

get good results from his VIC 20.

## Commodore expertise

Commodore is one of the world's leading manufacturers of micro-computers. In the UK, Commodore is already well known for its PET range of computers. More than 50,000 PETs are in use in businesses and schools. In fact, PET micro-computers are more popular for school use than any other computer.

One of the reasons for our success is that Commodore makes nearly all of the parts of our own micro-computers, including our "silicon chips". This enables us to keep our costs down and our quality high.

Another key to Commodore's success is our programming language, PET Basic. This is probably the easiest computer language to learn which is a major factor in the PET's popularity in schools. This same BASIC is available on the VIC 20.

In fact all of the best features of the PET are included in the VIC 20. Combine that with Commodore's expertise in micro-computers and you know the VIC 20 is a winner.

What's more, the VIC 20 is —

- **FRIENDLY IN PRICE,**
- **FRIENDLY TO USE,**
- **FRIENDLY TO EXPAND AND ENJOY.**

*Actual size

# WHAT VIC 20 CA

## VIC 20 Software

To make the VIC 20 (or any computer) perform a task, the computer must have a set of instructions, generally called "computer programs" or "software". You may write your own programs for the VIC 20 or use a program someone else has written. Look at the range of software you can buy!

## VIC 20 — Teach yourself Programming

Commodore is offering a unique service for the VIC 20 called "Teach Yourself Programming". The cassettes and accompanying manuals which make up this package will easily show the computer novice how to write his own software. The lessons proceed step-by-step.

No previous knowledge of computers or programming is required to understand the first manual and cassette in the series. By the end of the lessons on this cassette, you will be able to write your own simple programs. For example, you could create the instructions for the VIC 20 so that it will calculate currency conversion — for any countries and for any amount of money.

But that is just the first in the series. If you are really keen, you can go right through to advanced machine code programming. At that point you will be able to write highly sophisticated application programs. For example, you could generate the software to enable a computer to run a large company's entire invoice system.

"Teach Yourself Programming" represents an important innovation by Commodore. Its "show and tell" approach will make learning both entertaining and educational.

## VIC 20 in the home

The VIC 20 software includes many packages that will simplify home tasks. A few examples are outlined below.

## Metric Converter

A simple program that converts imperial measurements to metric and vice versa is available for the VIC 20. Enter the number of square yards and the VIC 20 will display the corresponding number of square metres — or litres to gallons, or kilograms to pounds — or fahrenheit degrees to centigrade, and so on.

## Recipe Aid

Would you like to serve your favourite casserole to the weekend guests? Is it a problem that the recipe is for 4 and you will be feeding 5? This VIC 20 program will tell you the necessary adjustments to make. It will also help with the planning by generating a timetable so that all parts of the meal are ready at the right time. What's more, it can tell you how long and at what temperature to roast the Sunday joint. Just tell this VIC 20 program the type of meat and weight and it can figure it out.

## Mortgage/Savings Plan

If you are saving money this program will calculate the value of your investment. If the mortgage rate changes, you can calculate your repayment costs.

## The DIY Kit

We've all experienced the headache of trying to estimate how much wallpaper, paint, upholstery material, carpet, wall tiles or floorcovering are required for a job around the home. With this program and your VIC 20 it's a headache no more because they will do the calculations for you.

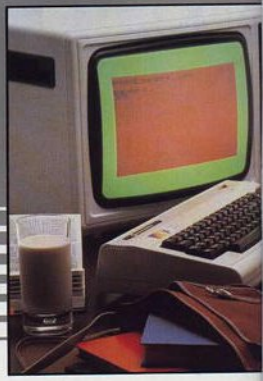
## Typing Trainer

The VIC 20 has a standard typewriter keyboard. This program will teach you to type using it. In fact it can help you to become a high-speed typing expert.

## VIC in Education

A computer is a great teacher. It never gets tired, irritable or bored. It will work at the student's own pace without losing its "smile". Whether young or old, there is something you can learn via your VIC 20.

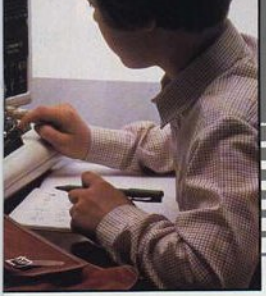
The education packages span from pre-school subjects to university curricula. Let's look, for example, at Maths. On the simple end of the



# AN DO FOR YOU

spectrum, a program is available that explains what numbers are. At the other end, the VIC 20 can teach you advanced algebra.

The VIC 20 offers interactive programs to help children with homework. For example, Mum or Dad can key in the words that their child must learn to spell for that week's lesson. Then the computer tests the child until he or she can spell them correctly.



Educational game packages are also available. One such is "Hangman" which is available covering subjects such as rivers, volcanoes, flowers, colours and so forth.

These educational programs make full use of the VIC 20's colour and sound to make learning entertaining and stimulating. Whether it's pre-school learning or advanced physics, there's a VIC 20 program to aid you.

## VIC in business

The VIC 20's full size typewriter keyboard, special screen editing keys and low cost peripherals (printers, disk, etc.) make it an ideal tool for the small businessman.

The VIC 20 can be an intelligent terminal (that is "talk" to a larger computer) or perform practical tasks itself. For example the VIC 20 could be used for stock management, book-keeping, payroll generation, etc., for small companies.

## VIC 20 for entertainment

The computer is undoubtedly the most powerful "games machine" ever invented. When you've finished learning how to program, doing the home accounts, planning the Sunday meal, and helping the kids with their homework, you can play all those entertaining electronic pub games on your VIC 20.

Whether you fancy "Space Invaders" or "Chess", there is a plug-in game cartridge to help you pass your leisure hours. The VIC 20 even offers a really complicated version of that old computer favourite, "Adventure". This one takes a great deal of time, skill and mental agility to win, but it's great fun.

These are games that will have Mum and Dad and their friends clustered around their VIC 20. But Commodore has a full range of games to enchant and occupy youngsters of all ages.

NOTE—Some of these packages are available now. The remainder will be released in 1982. Watch for them!

# PROGRAM STORAGE

The sets of instructions that enable the VIC 20 to perform a task can be stored either on tape, disk or cartridge. These three methods of storing and retrieving computer programs and information permit the VIC 20 owner to purchase a wide variety of computer software or to create his or her own programs and store them. This flexibility makes the VIC 20 an ideal choice for all levels of computer enthusiasts, from the novice to the experienced programmer.

## Cassette

The VIC 20 has a special socket so that you may plug in a Commodore cassette tape unit directly. Your programs can then be stored on tape and loaded into the computer whenever you wish to use them. The cassette tape storage system will be ideal for almost all VIC 20 owners.

## Cartridge

One of the VIC 20's special features is its ability to use programs that have been recorded on a cartridge. The cartridges are simply plugged into VIC 20 and used directly. Many programs for games and special applications are sold in cartridge form. A special cartridge is also available that will help you store and use large amounts of information or data from a disk.

## Disk Storage

The VIC 20 offers the option of storing programs and information on disk. Sophisticated computer owners sometimes require the faster and larger facility offered by the disk medium. For them, Commodore has introduced a low priced single disk drive unit especially designed for the VIC 20. By combining this unit with the business cartridge and a printer, the VIC 20 becomes the ideal system for the small businessman or serious computer programmer.

# A TOUR OF THE V

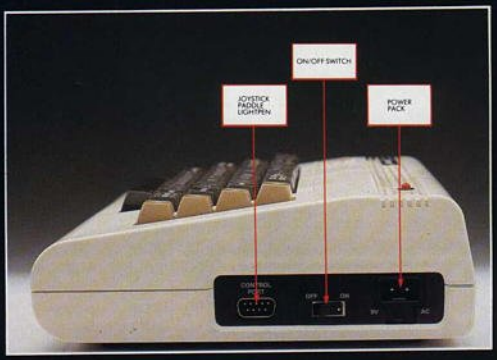
It's difficult to convey in a one dimensional publication just how powerful a 3 dimensional computer can be, but a good way to get to know the VIC 20 personal computer is to take a quick tour of the keyboard.

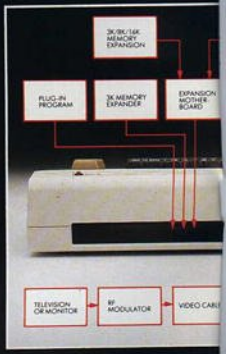
The keyboard contains upper and lower case keys, numbers and symbols, just like a typewriter keyboard. In addition, there are special editing keys, and the famous "PET GRAPHICS" character set. Here then, is a brief "tour" of the VIC keyboard:

### Graphics & the Commodore Key

When you turn on the VIC, you're automatically in "graphics" mode which means you can type upper case letters AND the more than 60 graphics you see on the keys. There are two graphics on

# VIC 20 EXPANSION CAPABILITIES



# VIC 20 KEYBOARD

each key. To get the graphic on the right side, simply hold down the SHIFT key and type the key with the graphic you want. To get the graphics on the left side, hold down the "COMMODORE" key (the little flag). In this way, you can type upper case letters and the full graphics set at the same time!

## Upper/lower case & graphics

To get into the "text" mode you simply press the SHIFT and COMMODORE keys together. This lets you use the VIC like an ordinary typewriter, with full upper and lower case letters, plus all the graphics on the LEFT side of the keys. These are the graphics which are most suited for charts, graphs and business forms.

## Colour

You can change the colours of the characters you type by pressing the CTRL key and one of the 8 colour/number keys. The colours are black, white, red, cyan, purple, green, blue and yellow. You can set — and change — colours inside or outside a computer program. In addition to the eight character colours, you can also change the colours of the BORDER and SCREEN on your television set, by typing a special command called a "POKE". For example, if you type the command POKE 36879, X where X is some number from 1 to 255, you can get up to 255 different combinations of screen and border colours, including 16 screen colours and 8 border colours.

## Special Editing Keys

Here are some of the other special keys which make the VIC such a powerful microcomputer:

**CTRL**—used to set character colours, and, in conjunction with special programs such as wordprocessing, to execute special commands.

Software writers can select their own "Control" commands and incorporate them into their programs.

**Run/Stop** — The RUN/STOP key lets you automatically load programs into the VIC's memory from a cassette tape. Hitting this key without shifting (i.e. STOP) interrupts a running program or listing. If you stop a program and want to resume it where you left off, you can type "CONT" and the program will "continue".

**Shift** — The VIC has two SHIFT keys and a SHIFT LOCK key, just like a typewriter, for typing long strings of upper case letters or graphics.

**RVS ON and RVS OFF** — These two keys let you type reverse characters on the screen (for instance white on black instead of black on white).

**CLR/Home** — This key makes the cursor move to the "home" position at the top lefthand corner of the screen. If you type SHIFT and CLR/HOME you "clear" the screen of all the characters that were present.

**INST/DEL** — This is a super editing key which lets you insert or (shifted) delete characters. It's great for correcting mistakes and inserting extra information.

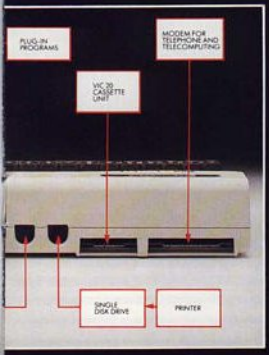
**Restore** — This is a "reset" key. If you type the RUN/STOP key and the RESTORE key together, you completely reset the computer as if you had just turned it on . . . with the benefit that any programs you had in the memory are retained and can be listed or run from the start.

**Cursor Keys** — Ability to move the screen cursor up and down and sideways by hitting single keys is a powerful feature of the VIC. Being able to move the cursor this easily is essential but not all computers include it as a feature.

**Return** — The RETURN key is used primarily for entering commands and instructions to the computer.

## Programmable Function Keys

One of the most unique features on the VIC is that mysterious vertical row of "function" keys on the far right side of the keyboard. There are four keys and (if you shift them) a total of eight functions. These keys are not defined when you turn on the computer, but you may assign any BASIC command or instruction set to them, under program control.




# PERIPHERALS & ACCESSORIES~ BASIC SPECIFICATIONS

### VIC 20 Tape Cassette Deck

A low priced cassette player for storing programs or data. Uses ordinary cassettes.

### VIC 20 Single Drive Floppy Disk Unit

A disk drive for 5¼ inch floppy disk. Gives 170K bytes of storage.

### VIC 20 Dot Matrix Printer

Tractor-feed, 80 character-per-line, 30 characters-per-second printer.

### VIC 20 Memory Expansion Cartridge

Plug-in memory expansion cartridge of 3K, 8K and 16K. Both the 8K and 16K cartridges must be used with a memory expansion board.

### VIC 20 Memory Expansion Board

Four-slot multiflexer which accepts 3K, 8K and 16K memory cartridges and/or program cartridges and/or IEEE devices.

### VIC 20 RS232 Interface Cartridge

Plug-in cartridge accessed via the user port for telecommunications such as modems, etc.

### VIC 20 IEEE Interface

For using IEEE devices with the VIC 20 including PET/CBM peripherals.

### VIC 20 Game Controllers

Joysticks, light pens, paddles, for use with game/educational cartridges.

### VIC Game Control Expansion board

Expansion board to enable use of multiple game controllers.

### VIC Program Cartridges

Plug-in programs for home use, business, education or recreation.

### VIC Programming Aid Cartridges

— High resolution graphics cartridge
— Programmer's aid cartridge including additional commands, function key programming and more.
— Machine code monitor cartridge.

# VIC 20 SPECIFICATIONS

## FOR THE MORE TECHNICALLY MINDED

Although VIC 20 is very much a computer for the first time user, it is more than that as well. The VIC 20 is expandable into a powerful computer indeed. The basic technical specifications of the VIC 20 are:

- 5K RAM expandable up to 29K
- RS232C interface capability
- 8 border colours, 16 screen colours which can be mixed
- 8 screen character colours generated directly from the keyboard
- 3 audible tone generators, each of 3 octaves
- a "white noise" generator for sound effects
- 22 characters wide by 23 lines deep screen display
- 88 character program line length
- 64 ASCII character set, upper and lower case alphabetics plus numerics
- full PET-type graphics character set generated directly from keyboard
- high resolution graphics capability either directly from defined keyboard characters or via a high resolution graphics cartridge
- 176 x 158 pixels (27,808 in total) maximum resolution
- 8 programmable special functions accessed via 4 special function keyboard keys
- automatic repeat on space bar, insert, delete and cursor control keys (other keys can be programmed to repeat).

For further information either contact your local VIC 20 dealer

or direct to

**Commodore Home Computer Division**

675 Ajax Avenue, Trading Estate, Slough, Berkshire.

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